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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,767	10/19/2005	Zenon Lysenko	62260A	7734

109 7590 05/13/2010

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P.O. BOX 1967
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EXAMINER	
GODENSCHWAGER, PETER F	
ART UNIT	PAPER NUMBER
1796	
MAIL DATE	DELIVERY MODE
05/13/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,767	LYSENKO ET AL.	
	Examiner	Art Unit	
	PETER F. GODENSCHWAGER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-19,21,23,42 and 45-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-19,21,23,42 and 45-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

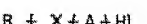
Applicant's reply filed February 1, 2010 has been fully considered. Claims 12, 46, 47, 50, and 51 are amended, and claims 12-19, 21, 23, 42, 45-52 are pending.

Claim Rejections - 35 USC § 103

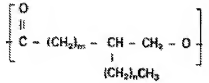
The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 12-17, 19, 21, 23, and 42rejected under 35 U.S.C. 103(a) as being unpatentable over Peerman et al. (EP 0 106 491) in view of Bahrmann et al. (CA 2,162,083) and when taken with Petrović et al. (Sturcture and Properteis of Polyurethane Based on Halogenated and Nonhalogenated Soy-Polyols, *J. Polym. Sci., Part A: Polym. Chem*, 2000, 38, 4062-4069).

Regarding Claims 12-14: Peerman et al. teaches a polyol of the following formula:

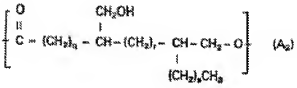


where p is an integer from 2-6, α is an integer from 0-10 (therefore satisfying formulas (I) and (II) of instant claim 12 containing both groups [X-H] and [X-A-H]), X is O, and R is a polyol (initiator) residue (abstract). Peerman et al. further teaches that each A may be the same or different and selected from groups A_1, A_2, and A_3, where A_1 is:



(A_1)

and A_2 is:



(A_2)

corresponding to A1 and A2 of the instant claims (abstract). Peerman et al. teaches that m, n, q, r, and s (m, n, v, r, and s of instant claim 12) are integers, m is greater than 3, n is greater than or equal to zero, m+n is 11-19 (anticipating the instant claim), q, r, and s are integers, q is greater that 3, r and s are greater than or equal to zero, and q+r+s is from 10-18 (anticipating the instant claim) (abstract). Peerman et al. further teaches that α (also called j*, see Peerman et al., Pg. 6, Lns. 20-30) is 0-10 (Pg. 3, Lns. 20-35), anticipating the claimed ratio of (a+b+c)/(p+q+t) of 0.5 to 50 and 1 to 25 (i.e. the chain length and degree of condensation of hydroxy ester). While Peerman et al. does not teach that the initiator has been alkoxylated to the extent that the initiator obtains a molecular weight of 625, it should be noted that claim 12 recites that R is only a *residue* of a polyol initiator that has been alkoxylated to such a degree. By definition, the term "residue" would imply that R need not comprise the same molecular components as the initiator, only be capable of being derived from the initiator and therefore need not contain the alkoxylated segment.

Peerman et al. does not teach the residue of the polyol further comprises a structure corresponding to A3 (the product of hydroformulating all three unsaturation points of a tri-

unsaturated fatty acid) in the instant claims as Peerman et al. teaches that tri-unsaturated starting material (for example linolenic acid, from soybean oil) will only only partially reduce to give a mixture of diformyl isomers (Pg. 9, Lns. 10-15). However, Bahrmann et al. teaches completely hydroformulated triply unsaturated fatty acids such as linolenic acid from soybean oil (Pg. 2, Lns. 20-25; Pg. 3, Lns. 10-30; Pg. 9, Lns. 5-20) that are useful for forming polyurethanes (Pg. 1, Lns. 5-20). Peerman et al. and Bahrmann et al. are analogous art because they are concerned with the same field of endeavor, namely hydroformulation of fatty acids derived from soybean oil for use as intermediates in forming polyurethanes. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the tri-hydroformulated fatty acid derivitives of Bahrmann et al. in the composition of Peerman et al. and would have been motivated to do so to provide for an additional (third) hydroxyl group on the molecules of Peerman et al. Such an additional hydroxyl group would provide for additional advantages such as additional control of the glass transition (Tg) of the resulting polyurethane from a change in the density of cross-linking as taught by Petrović et al. (Pg. 4062, Col. 1, Ln. 1 to Col. 2, Ln. 2). Such control would allow one to vary the elasticity of the polyurethane depending on the end use as is suggested by Peerman et al. (Pg. 23, Lns 29-35), without the addition of Peerman et al.'s extra polyols leading to an additional economic advantage.

Regarding Claims 15 and 19: Peerman et al. teaches that the polyol (R) may be 2,5-hexanediol (a polyol of instant claim 19, and a polyol with a secondary hydroxyl group), and thus the XH and XAH will inherently either be on primary and secondary hydroxyl groups respectively, or secondary and primary hydroxy groups respectively. (Pg. 11, Lns. 23-25).

Regarding Claims 21 and 23: Peerman et al. teaches that the polyols should be liquid (Pg. 26, Lns. 24-26), and may include polyol residues (R) with molecular weight of 2800 (Pg. 11, Ln. 23 to Pg. 12, Ln. 4).

Regarding Claim 42: Peerman et al. teach the polyol of Claim 12 wherein the polyol is reacted with a polyisocyanate to form a polyurethane (Pg. 20, Lns. 31-36).

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peerman et al. (EP 0 106 491) in view of Bahrmann et al. (CA 2,162,083) and when taken with Petrović et al. (Sturcture and Properteis of Polyurethane Based on Halogenated and Nonhalogenated Soy-Polyols, *J. Polym. Sci., Part A: Polym. Chem*, 2000, 38, 4062-4069) as applied to claim 12 above, and further in view of Rogier (US Pat. No. 4,216,344).

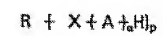
Peerman et al. in view of Bahrmann et al. and when taken with Petrović et al. render obvious the polyol of claim 12 as set forth above.

Peerman et al. teaches that triols disclosed in Rogier may be used (Pg. 12, Lns. 10-12). Rogier specifically discloses the triol may be glycerol (11:53-58). As glycerol has two primary hydroxyls and one secondary hydroxyls, and there are only thus only six possible combinations of ways to position either XH or XAH groups on the hydroxyl groups, all such combinations would could immediately be envisioned by one of ordinary skill in the art when employing glycerol as R, and thus such species would be anticipated.

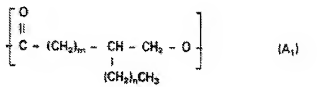
Claims 45, 50, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peerman et al. (EP 0 106 491) in view of Bahrmann et al. (CA 2,162,083) and when taken with

Petrović et al. (Sturcture and Properteis of Polyurethane Based on Halogenated and Nonhalogenated Soy-Polyols, *J. Polym. Sci., Part A: Polym. Chem*, 2000, 38, 4062-4069).

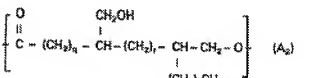
Regarding Claim 45: Peerman et al. teaches a polyol of the following formula:



where p is an integer from 2-6, α is an integer from 0-10 (therefore satisfying formulas (I) and (II) of instant claim 12 containing both groups [X-H] and [X-A-H]), X is O, and R is a polyol (initiator) residue (abstract). Peerman et al. further teaches that each A may be the same or different and selected from groups A_1, A_2, and A_3, where A_1 is:



and A_2 is:



corresponding to A1 and A2 of the instant claims (abstract). Peerman et al. teaches that m, n, q, r, and s (m, n, v, r, and s of instant claim 12) are integers, m is greater than 3, n is greater than or equal to zero, m+n is 11-19 (anticipating the instant claim), q, r, and s are integers, q is greater that 3, r and s are greater than or equal to zero, and q+r+s is from 10-18 (anticipating the instant claim) (abstract).

Peerman et al. does not teach the residue of the polyol further comprises a structure corresponding to A3 (the product of hydroformulating all three unsaturation points of a tri-unsaturated fatty acid) in the instant claims as Peerman et al. teaches that tri-unsaturated starting material (for example linolenic acid, from soybean oil) will only only partially reduce to give a mixture of diformyl isomers (Pg. 9, Lns. 10-15). However, Bahrmann et al. teaches completely hydroformulated triply unsaturated fatty acids such as linolenic acid from soybean oil (Pg. 2, Lns. 20-25; Pg. 3, Lns. 10-30; Pg. 9, Lns. 5-20) that are useful for forming polyurethanes (Pg. 1, Lns. 5-20). Peerman et al. and Bahrmann et al. are analogous art because they are concerned with the same field of endeavor, namely hydroformulation of fatty acids derived from soybean oil for use as intermediates in forming polyurethanes. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the tri-hydroformulated fatty acid derivitives of Bahrmann et al. in the composition of Peerman et al. and would have been motivated to do so to provide for an additional (third) hydroxyl group on the molecules of Peerman et al. Such an additional hydroxyl group would provide for additional advantages such as additional control of the glass transition (Tg) of the resulting polyurethane from a change in the density of cross-linking as taught by Petrović et al. (Pg. 4062, Col. 1, Ln. 1 to Col. 2, Ln. 2). Such control would allow one to vary the elasticity of the polyurethane depending on the end use as is suggested by Peerman et al. (Pg. 23, Lns 29-35), without the addition of Peerman et al.'s extra polyols leading to an additional economic advantage.

Peerman et al. does not teach a specific weight ratio of A_1, A_2, and A_3 relative to each other. However, it is common practice in the art to optimize result effective variables such as the weight ratio of A_1, A_2, and A_3 relative to each other (see MPEP 2144.05). At the time of the

invention, a person of ordinary skill in the art would have found it obvious to optimize specific weight ratio of A_1, A_2, and A_3 relative to each other and would have been motivated to do so to obtain the desired functionality for preparing polyurethane and the ultimate desired end use of the polyurethane, and for forming polyol without a tendency to gel (Pg. 3, Lns. 15-20, Pg. 20, Lns. 30-36).

Regarding Claims 50 and 51: Peerman et al. teaches that the polyols should be liquid (Pg. 26, Lns. 24-26), and may include polyol residues (R) with molecular weight of 2800 (Pg. 11, Ln. 23 to Pg. 12, Ln. 4).

Claims 46-49 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peerman et al. (EP 0 106 491) in view of Bahrmann et al. (CA 2,162,083) and when taken with Petrović et al. (Sturcture and Properteis of Polyurethane Based on Halogenated and Nonhalogenated Soy-Polyols, *J. Polym. Sci., Part A: Polym. Chem*, 2000, 38, 4062-4069) as applied to claim 45 above, and further in view of Rogier (US Pat. No. 4,216,344).

Peerman et al. in view of Bahrmann et al. and when taken with Petrović et al. render obvious the polyol of claim 45 as set forth above.

Regarding Claims 46-49: Peerman et al. teaches that triols disclosed in Rogier may be used (Pg. 12, Lns. 10-12). Rogier specifically discloses the triol may be glycerol (11:53-58). As glycerol has two primary hydroxyls and one secondary hydroxyls, and there are only thus only six possible combinations of ways to position either XH or XAH groups on the hydroxyl groups, all such combinations would could immediately be envisioned by one of ordinary skill in the art when employing glycerol as R, and thus such species would be anticipated. Peerman et al.

further teaches using polyol residues (R) that is alkoxylated with an alkoxylating agent such as ethylene oxide or propylene oxide (Pg. 14, Lns. 14-30).

Regarding Claim 52: Peerman et al. teach the polyols are reacted with a polyisocyanate to form a polyurethane (Pg. 20, Lns. 31-36).

Response to Arguments

Applicant's arguments, see Pgs. 10-11 of the reply, filed February 1, 2010, with respect to the rejection(s) of claim(s) 12-19, 21, 23, 42, 45-52 under 35 USC 103(a) over Peerman et al. have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art references Bahrmann et al. (CA 2,162,083) and Petrović et al. (Sturcture and Properteis of Polyurethane Based on Halogenated and Nonhalogenated Soy-Polyols, *J. Polym. Sci., Part A: Polym. Chem*, 2000, 38, 4062-4069) as set forth above.

Applicant's arguments, see Pgs. 14-15 of the reply, filed February 1, 2010, with respect to the provisional obviousness-type double patenting rejection over copending Application No. 11/665,097 have been fully considered and are persuasive. The provisional obviousness-type double patenting rejection of claims 12 and 45 has been withdrawn.

The 35 USC 112 second paragraph rejections are withdrawn in light of Applicant's amendment.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/P. F. G./
Examiner, Art Unit 1796